

EN

Apus

# MANUAL

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VERSION 1.0/2015 ©

### Verification of Checks and repairs

<p><b>APUS</b></p> <p>Serial number: .....</p> <p>First check by ICARO / date: .....</p>	<p>.....</p> <p>Name/ Stamp</p>
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Check (C) Repair (R)	Which repair/ Check? Check valid until?	Performed by/ date

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Congratulations on buying your  
**APUS**  
harness and welcome the family  
of **ICARO** - pilots!

Before you get to know your system please read the manual, there is important information inside.

Our products are made with great care and state of the art. Each harness before it is delivered to the dealer or flight school is checked by ICARO paragliders but test flights are made only on a random basis.

On that score an approved ICARO dealer or teacher of the flight school must check a new ICARO harness especially when mounting a rescue system (compatibility check). This date is entered in the identification plate and as well guarantee as the first 2-year-check period starts. If this seal is missing, it must be assumed that this harness is not identical in construction with the model tested at the specification center.

Your harness is tested according European Standards EN 1651:1999<sup>1</sup>, and Notification of the Federal Aviation Administration of Germany <sup>2</sup> **as an lightweight harness *but only with mounted airbag- protector!***

***It is strictly prohibited to fly the harness***

- ***with damaged carbines, belts, buckles or protector,***
- ***outside the specified weight range, and***
- ***in aerobatics, tandem- or motorized flying.***

In order to get to know your harness together with your glider, we recommend groundhandling. Here you can find out the reactions of your glider in combination with the harness without any stress. Ground practice pays off in the air.

This manual gives you information on the entire specific and general characteristics of the harness.

Should you decide to sell this harness at a later date, please pass on this manual to the new owner.

No guarantee of any kind can be made against accidents, injury, equipment failure, and/or death. It is assumed that the pilot is in possession of the necessary qualifications and provisions of any relevant laws are observed.

The use of this harness is entirely at your own risk.

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<sup>1</sup> - EN 1651 Harnesses –Requirements and test methods

<sup>2</sup> „Directives about airworthiness for hang- and paragliders (LTF NfL II 91/09)“.

Every pilot bears the responsibility of his/her own safety. The manufacturer or distributor assumes no responsibility for accidents occurring while using it.

Do not fly unless you are personally willing to assume all risks inherent in the sport of paragliding and all responsibility for any property damage, injury, or death, which may result from use of this sport.

All technical data and instructions in this manual were drawn up with great care. ICARO Paragliders cannot be made responsible for any possible errors in this manual.

Important information in this manual is written in ***fat cursive writing***.

Any important changes to this manual will be published in our homepage ([www.icaro-paragliders.de](http://www.icaro-paragliders.de)).

Should you decide to sell this harness at a later date, please pass on this manual to the new owner.

Each alteration is dangerous and reactions are not predictable. Your harness will lose its pattern test result and guarantee.

The manufacturer or distributor assumes no responsibility for accidents occurring while using it.

Every pilot must ensure that the harness is properly checked at regular intervals.

#### **Environmental aspects:**

The materials of which a harness is made require a special waste disposal. So please send disused ICARO - harnesses back to us. We will care about a professional waste disposal without costing for you.

Please do our nature-near sport in a way which does not stress nature and environment!

Please do not walk beside the marked ways, do not leave your litter, do not make unnecessary loud noises and respect the sensitive balance in the mountains.

**Especially at the launch site consideration is needed!**

## To get to know your APUS

Allowed for training	no
Allowed /certified for aerobatics	no/ no
Allowed /certified for flying with passengers	no/ no
Allowed /certified for towing	yes / no
Allowed /certified for flying with motor drive	no / no

<b>Technical data</b>	
Designated use	Light weight harness
size	One size
Height of suspension	45 cm
Maximum loading (kg)	100 kg
Distance between carabiner	37 – 48 cm
Total weight (without rescue system and protectors)	1,2 kg
Total weight (without rescue system with all protectors)	1,95 kg
Types of protectors (additionally mountable)	Foamed rubber protector 3 cm (0,25 kg) Lexan plate (0,20 kg) mountable in a separate insertion on the backside; Airbag- protector (0,30 kg)
Reserve parachute	Separate container mountable at the side or in front of the pilot
Check interval	24 month

This lightweight harness with very low volume is ideal for those who combine flying with trekking or climbing. It is also very comfortable on long flights. It includes central stability adjustment. Aluminium adjustment buckles on shoulder straps, to avoid any problems of accidental breakage and complete with pulleys for the speed system; Maximum freedom of movement during ground handling, start and landing is ensured.

The harness is a simple lightweight harness, designed for maximum comfort and ease of use. It is easy to carry around when not in the air. On the shoulder straps are attached Velcro and pads for mounting mini-variometer or life-tracking-systems. They can be optimally positioned and protected against loss by sewn Mini Loops .

## Protection systems

There are two different protection systems, a 3cm foam protector with Lexan plate (unbreakable plastics) mountable on the back as primary protection for groundhandling and an airbag which provides excellent protection against the shock caused by impact.

### **Only with mounted airbag-protector the harness is pattern tested!**



This airbag protector is easy to install, and the procedure is obvious. The protection system has four straps which are fixed to the harness. The two lower straps are directly fastened to the harness bridle, while the upper straps are attached to the plastic rings placed near the back regulation components.



## Acceleration system

After having adjusted the sitting position to the optimum configuration, the accelerator must be adjusted. This harness is compatible with all normal types of speed-system accelerators.

The speed-bar cords are threaded firstly through the eyes fixed to the elastic in front of the board, and then into the harness through the eyes near the front corners of the seat, after which they are led through the pulleys near the rear corners of the seat and brought directly up to connect to the risers.

To adjust the system correctly, the pilot has to adopt a flying position in the harness, suspended from a flight simulator, and hook into the risers of the paraglider.

If the speed-bar cord is too short, it could cause a constant force on the bar during flight,



so that the accelerator is unintentionally engaged at all times in flight.

***Please pay attention that the glider will not be pre-accelerated, while the accelerator is loosened, when the acceleration ropes are set too short.***

It is safest to take off with the speed-bar a little too long, progressively shortening it during the next flights.

***Remember that all adjustments have to be performed symmetrically, on both sides and with mounted protectors.***

### **Reversible back pack**

The reversible rucksack provides a high capacity in combination with simplicity in use.

To pack flying equipment, open the zips of the rucksack completely, and fold it over the back of the harness.

Ensure that the padded section around the airbag inflation valve does not suffer any tight folds which could eventually mar its correct functioning.

After having folded the paraglider carefully, place it into the rucksack.

The remaining space above should be sufficient to store the helmet, instruments, and extra garments.



When all equipment has been placed inside, the rucksack can be tightened in order to hold the contents firmly in position. This stabilizes the load and makes carrying the rucksack more comfortable. The adjustment straps on the rucksack shoulder straps can be used in the same way.

## **Adjustment of the harness**

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The harness provides a number of methods of adjustment so that the pilot can fly in the ideal position. A little time has to be invested in finding the optimum position, but this effort will be rewarded by exceptional comfort in flight.

Before making any adjustments, the reserve parachute must be in position. To find the best position, we suggest hanging in your harness from a suitable point of support, simulating flying position and conditions.

For this reason, it is best to place all the things that you would normally carry with you when flying into the back pocket (rucksack, accessories, extra clothing and other sundry items).

### **Leg strap adjustment**

Because the leg straps are attached relatively high up, the pilot has considerable freedom in thigh movement. Normally, the manufacturer's original setting should be satisfactory.

However it is important to try reaching the correct seated position in the launch phase without using your hands, by testing the movements in a flight simulator.





### **Back position adjustment**

By adjusting the back (using the trimmers higher up on the side), the pilot adjusts the inclination of the torso with respect to the vertical axis in flight.

A good flying position, improving control of the glider, is obtained by positioning the face at about 15 cm from an imaginary line between the two karabiners.



### **Shoulder-strap adjustment**

Shoulder-strap adjustment enables the harness to be adjusted to the pilot's height. The adjustment buckle is situated low down, near the rear edge of the seat.

The shoulder-straps also support part of the torso weight to improve comfort.



## Chest strap adjustment

The chest strap adjusts the distance between the two karabiners, and it can be set between 37 and 48 centimetres. When the chest strap is tighter, stability is greater.

A wider distance does not improve glider performance, and a smaller distance can accentuate the effects of a “twist” following an asymmetric collapse.



***Each setting the harness must be done with mounted protector, rescue system and be symmetrical on both sides.***

## Reserve parachute

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The container for the reserve parachute is not included in the standard harness. It is an optional extra, and it should be positioned on the harness attachment strap. The container is large enough for most of the reserve parachutes available on the market today. It is connected at two points (2), on the two hook-in karabiners, in order to distribute load and to ensure a correct landing position in the case that the reserve parachute is deployed, therefore reducing the possibility of injury to a minimum.



***The harness is supplied with a handle for reserve parachute extraction; this handle alone should be used for this purpose.***

The black loop attached to the handle itself should be passed into the loop on the deployment bag, and then the entire handle should be passed through its own loop and pulled tight. For easier extraction, the loop attached to the deployment bag should be positioned to the centre of the reserve parachute.



***If in your inner container there is no loop, get in contact with the producer of your rescue system.***

### **Connecting the reserve parachute to the harness**

The harness reserve parachute bridle is passed through the loop at the end of the reserve parachute bridle. The reserve parachute itself is then passed through the large loop in the harness bridle.

This connects the two bridles. The loops should be pulled as tight as possible to avoid any chance of dangerous friction developing between the two bridles during the shock caused when the reserve parachute opens.



***The reserve parachute bridle is not included with the harness.***

### **Inserting the reserve parachute (into original container)**

Insert the reserve parachute into the container so that the handle can be seen on the exterior side, and so the loop connecting the deployment handle to the deployment bag is facing upwards. Thread a thin cord (such as paraglider riser cord) through each elastic loop. This will help close the pocket. Thread the elastic



loops into the smallest of the eyelets on the pocket flaps. Close the flaps following the order shown in the photographs below. Push the plastic pins on the handle into the elastic loops and under the transparent cover. It is essential to remove the cord after this operation. Lastly, the handle should be positioned under the two cover loops.



## **Don't forget to remove the cords used to help pack the rescue system!!**

The cord should be pulled out slowly in order not to damage the elastic loops by excessive friction.

### **Compatibility check**

A control of every new combination of rescue system and harness/outer container has to be carried out by either the producer of the harness or the rescue system or an authorized person (dealer or flight instructor).

The activation of the rescue system in flight position has to be correct and in conformity to the construction guidelines.

***The check has to be recorded in the documentation of the rescue system. The throwing movement should be practiced every time the rescue system is repacked.***

## **IMPORTANT POINTS TO LOOK OUT FOR:**

- **Check (steady)**
  - connection of the rescue system to your harness
  - connection of the harness and deployment handle
- **line from the fixing loops is removed (after each packing)**
- **Check compatibility of rescue system and harness**
- **Before each start with your glider you have to check the container is closed!!!**

### **Reserve parachute deployment**

It is vital to feel periodically for the position of the reserve parachute deployment handle during normal flight, so that the action of reaching for the reserve parachute handle becomes instinctive in an emergency. In emergency situations, the deployment procedure is as follows:

- Look for the reserve parachute handle and grasp it firmly with one hand.
- Pull the handle outwards in order to extract the reserve parachute from the harness container.
- Look for a clear area, and, in a continuous motion, throw the reserve parachute away from yourself and the paraglider.
- After the reserve parachute has opened, avoid entanglement by pulling in the paraglider, gripping at least one back strap of the risers or the brake lines, in order to collapse the glider. On landing, adopt an upright body position, and ensure that you perform a PLF (Parachute Landing Fall) to minimize the risk of injury.

## Flying with the APUS

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### Pre-flight checks

For maximum safety, use a complete and consistent system of pre-flight checks and repeat the same mental sequence every flight. Check that

- all buckles are fastened. Take particular care in the case of ice or snow. Always clean off snow or ice before fastening buckles;
- the reserve parachute handle is fastened in its correct position, and the pins are firmly inserted;
- pockets and zips are closed;
- the paraglider is connected correctly to the harness, and that both karabiners are locked closed by means of their locking system;
- the speed bar is attached correctly to the glider.

Flying dual with this harness is forbidden, because a passenger in front of the pilot would obstruct the inflation valve, preventing the airbag from reaching its optimum protective capacity

The harness can be used for towed launches. The tow bridle release should be hooked directly to the main karabiners, ensuring that the karabiners are positioned with the opening bar facing the rear. For further details, refer to the documentation provided with your tow release, or ask a qualified towing instructor at your flying site.

Before landing, slide your legs out and off the seat surface, so that you take up a standing position. Never land in the seated position; it is very dangerous for your back because there is no dorsal protection. Even if you have the optional Airbag, this is an exclusively passive form of protection, and so landing in the seated position would be dangerous in any case. Standing up before landing is an active safety precaution, and it is much more effective than passive forms of protection.

## Care, repair and inspection

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### Care Instructions

To maintain your harness in good condition, please ensure that the harness does not get dragged along the ground, the karabiner does not get hit against rocks and avoid over exposure to sunlight, heat or humidity.

If you wish to clean your harness it is best to use warm water and a soft sponge.

Store your harness in a dry and dark place, ideally between 5° and 30° Celsius. Do not store it near chemicals or petrol.

If you will not fly for longer period, open the pack.

Avoid storing your harness for days at a time in a hot car.

If the harness has become wet, lay it out so that air can get to all areas of the fabric, also your second chance.

***It may take several days for your harness and your rescue system to dry out completely especially the lines of the rescue system, which take longer than the fabric. Do not fold and store your rescue system prematurely if it not completely dry. Mildew may damage your harness and your rescue system.***

## Repairs

***The seal of approval can only be preserved if original parts are used. If you discover any damaged parts to the harness which might impede deployment, please send it back to the manufacturer to be repaired.***

***Repairs can only be carried out by the manufacturer or from the manufacturer authorized persons.***

## Inspection

After 24 months, it is important to have your harness inspected by a trained ICARO technician.

***Without regular certified inspections, your harness will lose its certification and guarantee.***

Only an authorized technician who has been trained by ICARO paragliders is authorized to sign and date the harness certification label and sign the manual.

## Terms of guarantee

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ICARO paragliders guarantees 24 month for the proper processing, an operation within the allowable limits of proper operation and the fulfillment of the eligibility criteria of harness equipment at the time of first delivery by ICARO paragliders.

# ***Guarantee is only guilty for ICARO products with LTF/ EN certification <sup>3</sup>.***

### **What is covered by the guarantee?**

Provided that ICARO paragliders accept the fault the guarantee contains all necessary spare parts related to the replacement or repair of defective parts and working time.

ICARO paragliders accept no freight costs (outbound and return transportation).

### **What are the conditions of the guarantee?**

Provided that ICARO paragliders accept the fault the guarantee contains all necessary spare parts related to the replacement or repair of defective parts and working time.

- ICARO paragliders needs to be informed immediately after the discovery of a defect and the defective product must be sent to us for testing.
- The harness was used in normal circumstances and maintained according to the instructions. This includes in particular the careful drying, cleaning and storage.
- The the harness were used only within the applicable guidelines and all rules have been complied with all times.

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<sup>3</sup> - EN 926-1 und EN 926-2 for gliders, EN 1651 for rescue systems , EN 12491 for harnesses, all at the time guilty version  
- LTF/ NfL II 91/09 und NfL 2-60-14

- All flights must be accounted for within the flight book.
- There were only original spare parts used and checks, exchange and / or repairs were conducted by an authorized dealer or by ICARO paragliders company / person and properly documented.
- A fully and correctly completed guarantee card must be sent at least 6 weeks after buying the glider to ICARO paragliders commercial. Alternatively can this be sent via the appropriate online form on [www.icaro-paragliders.com](http://www.icaro-paragliders.com).

#### **What is excluded from guarantee?**

- Harnesses
  - that are used for training purposes, Acro or tandem flying,
  - which were involved in an accident,
  - which have been changed by yourself,
  - that were not purchased from an authorized dealer / flight school,
  - where the required inspection intervals were not met and the verification of the harness was not conducted by a ICARO paragliders authorized operation / person
- Damage
  - which has occurred due to improper treatment (i.e. storage in humidity, heat or direct sunlight)
  - caused by solvents, salt water, insects, sun, sand, humidity or “debag-jumps”.
  - caused by force majeure.
  - caused by the paramotor (Oil, fuel, damage in cause of the prop)
- Parts that need to be replaced due to normal wear and tear,
- Discoloration of the cloth material used,

***In case of a concluded claim the period of guarantee carries on.***

***The period of guarantee and the connected claim are not prolonged and are only valid until the original date of expiry.***

***The freight costs (transport to and from) are not paid by ICARO paragliders.***

**Team ICARO thank you for your trust in our products.**

**Should you have any questions, ideas or criticism**

**please contact us.**

**This paraglider has been developed and produced by modern technology and will give you years of pleasurable and unforgettable flight experiences.**

## Annex

Please fill in the guarantee card which you find on our homepage [www.icaro-paragliders.com](http://www.icaro-paragliders.com) and send it to us.

<b>Check sheet for harnesses</b>					
Client (Name, Address):					
Type / size / year of construction :			Serial number:		
Certification number:			Date of last inspection:		
			Memos	yes	no
Seat strap system	Visible damages?				
	Areas of abrasion?				
Seat board	Visible damages?				
	Positioning of the straps ok?				
Straps	Visible damages?				
	Course of the straps?				
	Seams ok?				
Buckles and carabines	Visible damages?				
	Condition (closing properties, operation) ok?				
	main carabines (condition, age)				
	Operativeness ok?				
Protectors  Airbag -/ Foamed material	Visible damages?				
	Seams ok?				
	Valve ok?				
	Tightness airbag/ foam protector sheeting?				
	Conditions of any reinforcements ok?				
Speed bar	Visible damages?				
	Fixing rubber ok??				
	Return pulleys ok?				
	Lines ok?				
Rescue system	Visible damages?				
	Identification plate ok?				
	V-lines				
	Handle fitted and connected?				
Backpack (reversible harnesses)	Visible damages?				
	Zip ok?				
	Buckles ok?				
	Seams ok?				
	Compatibility check effected?			Additional repairs carried out? Which?	
Type label affixed?					
Inspection stamp affixed?					
<b>Overall result</b>			<b>Next inspection:</b>		
As new					
Very good			<b>Next inspection when using the harness commercial:</b>		
Used					
Much used			Date, name and signature of the checker		
certification only for one year					
not airworthy					



### Dispatch protocol / Delivery content

ICARO check performed	<input type="checkbox"/>
Handle	<input type="checkbox"/>
Gummi	<input type="checkbox"/>
Airbag	<input type="checkbox"/>
3cm foam protector	<input type="checkbox"/>
Lexan plate	<input type="checkbox"/>
Manual	<input type="checkbox"/>

.....

Date

.....

Signature